



DEPARTMENT OF REGULATORY AND ECONOMIC RESOURCES (RER)
BOARD AND CODE ADMINISTRATION DIVISION

MIAMI-DADE COUNTY
PRODUCT CONTROL SECTION

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NOTICE OF ACCEPTANCE (NOA)

Flex Membrane International, Corp.
2670 Leisch's Bridge Road, Suite 400
Leesport, PA 19533

SCOPE:

This NOA is being issued under the applicable rules and regulations governing the use of construction materials. The documentation submitted has been reviewed and accepted by Miami-Dade County RER - Product Control Section to be used in Miami Dade County and other areas where allowed by the Authority Having Jurisdiction (AHJ).

This NOA shall not be valid after the expiration date stated below. The Miami-Dade County Product Control Section (In Miami Dade County) and/or the AHJ (in areas other than Miami Dade County) reserve the right to have this product or material tested for quality assurance purposes. If this product or material fails to perform in the accepted manner, the manufacturer will incur the expense of such testing and the AHJ may immediately revoke, modify, or suspend the use of such product or material within their jurisdiction. RER reserves the right to revoke this acceptance, if it is determined by Miami-Dade County Product Control Section that this product or material fails to meet the requirements of the applicable building code.

This product is approved as described herein, and has been designed to comply with the Florida Building Code including the High Velocity Hurricane Zone of the Florida Building Code.

DESCRIPTION: Flex Single Ply PVC Roof Systems over Concrete Decks

LABELING: Each unit shall bear a permanent label with the manufacturer's name or logo, city, state and following statement: "Miami-Dade County Product Control Approved", unless otherwise noted herein.

RENEWAL of this NOA shall be considered after a renewal application has been filed and there has been no change in the applicable building code negatively affecting the performance of this product.

TERMINATION of this NOA will occur after the expiration date or if there has been a revision or change in the materials, use, and/or manufacture of the product or process. Misuse of this NOA as an endorsement of any product, for sales, advertising or any other purposes shall automatically terminate this NOA. Failure to comply with any section of this NOA shall be cause for termination and removal of NOA.

ADVERTISEMENT: The NOA number preceded by the words Miami-Dade County, Florida, and followed by the expiration date may be displayed in advertising literature. If any portion of the NOA is displayed, then it shall be done in its entirety.

INSPECTION: A copy of this entire NOA shall be provided to the user by the manufacturer or its distributors and shall be available for inspection at the job site at the request of the Building Official.

This NOA renews and revises NOA# 09-0106.02 and consists of pages 1 through 14.
The submitted documentation was reviewed by Alex Tigera.



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ROOFING SYSTEM APPROVAL

Category: Roofing
Sub-Category: Single Ply
Material: PVC
Deck Type: Concrete
Maximum Design Pressure -615 psf

TRADE NAMES OF PRODUCTS MANUFACTURED OR LABELED BY APPLICANT:

TABLE 1

<u>Product</u>	<u>Dimensions</u>	<u>Test Specification</u>	<u>Product Description</u>
Flex Tripolymer MF/R	45, 50, 60, 120 mils	ASTM D 4434 Type III	Polyester reinforced PVC membrane for mechanical attachment or adhered application.
Flex Tripolymer FB	45, 60, 80, 120 mils	ASTM D 4434 Type III	Polyester felt-backed PVC membrane for application in hot asphalt or adhesive.
Flex MFR PVC	50, 60, 80 mils	ASTM D 4434	PVC membrane for mechanical attachment.
Flex Substrate Adhesive	5 gallon	Proprietary	Adhesive used to bond Flex Tripolymer FB membrane to substrate.
Flex Bonding Adhesive		Proprietary	Adhesive used to bond Flex Tripolymer MF/R membrane to substrate.
Flex FB Low Rise Adhesive		Proprietary	Adhesive used to bond Flex Tripolymer FB to substrate.
Flex Substrate 2375		Proprietary	Synthetic rubber adhesive
GAFGLAS® FlexPly™ 6	39.37" (1 meter) wide	ASTM D 2178	Type VI asphalt impregnate glass felt with asphalt coating.



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APPROVED INSULATIONS:

TABLE 2

<u>Product Name</u>	<u>Product Description</u>	<u>Manufacturer</u> <u>(With Current NOA)</u>
EnergyGuard	Polyisocyanurate foam insulation	GAF
Dens Deck	Silicon treated gypsum	Georgia-Pacific Gypsum LLC
ENRGY 3, ENRGY 3 25 PSI	Isocyanurate Insulation	Johns Manville
Fesco Foam	Isocyanurate Insulation with perlite facer	Johns Manville
High Density Wood Fiberboard	High Density Wood Fiber insulation board.	Generic
Perlite Insulation Board	Perlite Insulation	Generic
Type X Gypsum	Gypsum Wallboard	Generic
Multi-Max FA-3	Polyisocyanurate foam insulation	Rmax, Inc.
FOAMGLAS Insulation Readyboard	A rigid closed cell glass and carbon based insulation board with a polypropylene facer	Pittsburgh Corning Corporation
XPS	Extruded Polystyrene insulation	Generic
FOAMGLAS Insulation Flat Block	A rigid closed cell glass and carbon based insulation board	Pittsburgh Corning Corporation
H-Shield	Polyisocyanurate foam insulation	Hunter Panels, LLC



APPROVED FASTENERS:**TABLE 3**

<u>Fastener Number</u>	<u>Product Name</u>	<u>Product Description</u>	<u>Dimensions</u>	<u>Manufacturer (With Current NOA)</u>
1.	Dekfast 14	Insulation and membrane fastener	Various	SFS Intec, Inc.
2.	Dekfast Galvalume Steel Hex Plate	Insulation and membrane fastener	Various	SFS Intec, Inc.
3.	#14 Roofgrip	Insulation and membrane fastener	Various	OMG, Inc.
4.	Recessed Metal Plate	Galvalume stress plate	3" square	OMG, Inc.
5.	3 in. Round Metal Plate	Galvalume stress plate	3" round	OMG, Inc.
6.	OMG 3" Galvalume Steel Plate	Galvalume stress plate	3" round	OMG, Inc.
7.	Dekfast 15 HS	Insulation fastener for use in concrete, wood and steel decks	Various	SFS Stadler, Inc.
8.	Dekfast Galvalume Steel 3" Round	Galvalume AZ55 stress plate	3" round	SFS StadlerIntec, Inc.
9.	OMG 2" Barbed Plate	Galvalume disc with barbs.	2" round	OMG, Inc.

EVIDENCE SUBMITTED:

<u>Test Agency/Identifier</u>	<u>Name</u>	<u>Report</u>	<u>Date</u>
Factory Mutual Research Corp.	J.I. 2X4A1.AM	FM 4470	06/29/94
	3033126	FM 4470	07/11/08
	3044248	FM 4470	04/30/12
	3043325	FM 4470	11/17/11
	3013704	FM 4470	04/22/02
Underwriters Laboratories, Inc.	R9228	UL 790	01/01/96
Trinity Engineering, Inc.	#3901.12.95-1	TAS 114	12/31/95
	F42130.06.13	ASTM D4434	06/05/13
	F42130.06.13-1	ASTM D4434	06/05/13
	F42130.09.13	ASTM D4434	09/13/13
Exterior Research & Design, LLC. - Trinity Engineering	#3901.02.96-1	TAS 114	01/30/96
IRT of S. Florida, Inc.	99027	TAS 114	11/16/99

APPROVED ASSEMBLIES

Membrane Type:	Single Ply, PVC
Deck Type 3I:	Concrete Decks, Insulated
Deck Description:	2500 psi structural concrete.
System Type A(1):	All layers of insulation fully adhered; membrane fully adhered.

All General and System Limitations apply.

Vapor Retarder: One ply of GAFGLAS® FlexPly™ 6 vapor barrier applied at a rate of 20-25 lbs/sq (1.0-1.2kg/m²).

One or more layers of the following.

<u>Insulation Layer</u>	<u>Insulation Fasteners (Table 3)</u>	<u>Fastener Density/ft²</u>
H-Shield Minimum 1.5" thick	N/A	N/A

Note: Concrete deck shall be primed with ASTM D 41 asphalt primer applied at a rate of 0.75 gal/sq (0.61kg/m²) and allowed to dry prior to application of vapor retarder. Insulation shall be adhered to the deck in full mopping of approved asphalt within the EVT range and at a rate of 20-25 lbs/sq (1.0-1.2 kg/m²). Please refer to Roofing Application Standard RAS 117 for insulation attachment. Insulation listed as base layer only shall be used only as base layers with a second layer of approved top layer insulation installed as the final membrane substrate. Composite insulation panels used as a top layer shall be placed with the Polyisocyanurate side facing down.

Vapor Retarder:	Two plies of GAFGLAS® FlexPly™ 6 ply sheets applied to insulation with hot asphalt applied at 20-25 lbs/sq (1.0-1.2kg/m ²).
Membrane:	Flex Tripolymer FB is fully adhered with hot asphalt at a rate of 20-25 lbs./sq (1.0-1.2kg/m ²) applied to the insulation.
Maximum Design Pressure:	-195 psf. (See General Limitation # 9.)



Membrane Type: Single Ply, PVC
Deck Type 3I: Concrete Decks, Insulated
Deck Description: 2500 psi structural concrete.
System Type A(2): All layers of insulation fully adhered; membrane fully adhered.

All General and System Limitations apply.

One or more layers of the following.

<u>Insulation Layer</u>	<u>Insulation Fasteners (Table 3)</u>	<u>Fastener Density/ft²</u>
ENRGY 3 Minimum 1.5" thick	N/A	N/A

Note: Concrete deck shall be primed with ASTM D 41 asphalt primer and allowed to dry prior to application of base sheet. Insulation shall be adhered to the deck in full mopping of approved asphalt within the EVT range and at a rate of 20-40 lbs/100 ft². Please refer to Roofing Application Standard RAS 117 for insulation attachment. Insulation listed as base layer only shall be used only as base layers with a second layer of approved top layer insulation installed as the final membrane substrate. Composite insulation panels used as a top layer shall be placed with the Polyisocyanurate side facing down.

Membrane: Flex Tripolymer MF/R or Flex Tripolymer FB adhered with Flex Substrate adhesive at a rate of 1.66 gal./sq. applied to the insulation.
Maximum Design Pressure: -205 psf. (See General Limitation # 9.)



Membrane Type: Single Ply, PVC
Deck Type 3I: Concrete Decks, Insulated
Deck Description: 2500 psi structural concrete.
System Type A(3): All layers of insulation fully adhered; membrane fully adhered.

All General and System Limitations apply.

Vapor Retarder: One ply of approved GAFGLAS® FlexPly™ 6 vapor barrier applied at a rate of 20-25 lbs/sq (1.0-1.2kg/m²).

One or more layers of the following.

<u>Insulation Layer</u>	<u>Insulation Fasteners (Table 3)</u>	<u>Fastener Density/ft²</u>
H-Shield Minimum 1.5" thick	N/A	N/A

Note: All insulations shall be adhered to the deck in full mopping of approved asphalt within the EVT range and at a rate of 20-25 lbs/sq (1.0-1.2kg/m²). Please refer to Roofing Application Standard RAS 117 for insulation attachment. Insulation listed as base layer only shall be used only as base layers with a second layer of approved top layer insulation installed as the final membrane substrate. Composite insulation panels used as a top layer shall be placed with the Polyisocyanurate side facing down.

Membrane: Flex Tripolymer FB is fully adhered with hot asphalt at a rate of 20-25 lbs./sq (1.0-1.2kg/m²) applied to the insulation.

Maximum Design Pressure: -300 psf. (See General Limitation # 9.)



Membrane Type: Single Ply, PVC
Deck Type 3I: Concrete Decks, Insulated
Deck Description: 2500 psi structural concrete.
System Type A(4): All layers of insulation fully adhered; membrane fully adhered.

All General and System Limitations apply.

Vapor Retarder: Two plies of GAFGLAS® FlexPly™ 6 applied to primed concrete deck with Type III hot asphalt applied at 25 lbs/ sq (1.2 kg/m²)

One or more layers of the following.

<u>Insulation Layer</u>	<u>Insulation Fasteners (Table 3)</u>	<u>Fastener Density/ft²</u>
FOAMGLAS Insulation Readyboard Minimum 1.57" thick	N/A	N/A

Note: Insulation shall be adhered using Type III hot asphalt applied at 25 lbs/ sq (1.2 kg/m²). Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Vapor Retarder: Two plies of GAFGLAS® FlexPly™ 6 applied to insulation with Type III hot asphalt applied at 25 lbs/ sq (1.2 kg/m²)

Membrane: Flex Tripolymer FB adhered with Type III hot asphalt applied at 25 lbs/sq (1.2 kg/m²).

Maximum Design Pressure: -360 psf. (See General Limitation # 9.)



Membrane Type: Single Ply, PVC
Deck Type 3I: Concrete Decks, Insulated
Deck Description: 2500 psi structural concrete.
System Type A(5): All layers of insulation fully adhered; membrane fully adhered.

All General and System Limitations apply.

Vapor Retarder: Two plies of GAFGLAS® FlexPly™ 6 applied to primed concrete deck with Type III hot asphalt applied at 25 lbs/ sq (1.2 kg/m²).

One or more layers of the following.

<u>Insulation Layer</u>	<u>Insulation Fasteners (Table 3)</u>	<u>Fastener Density/ft²</u>
FOAMGLAS Insulation Readyboard Minimum 1.5" thick	N/A	N/A

Note: Insulation shall be adhered using Type III hot asphalt applied at 25 lbs/ sq (1.2 kg/m²). Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Vapor Retarder: Two plies of GAFGLAS® FlexPly™ 6 applied to insulation with Type III hot asphalt applied at 25 lbs/ sq (1.2 kg/m²)

Membrane: Flex Tripolymer FB adhered with Type III hot asphalt applied at 25 lbs/sq (1.2 kg/m²).

Maximum Design Pressure: -495 psf. (See General Limitation # 9.)



Membrane Type: Single Ply, PVC
Deck Type 3I: Concrete Decks, Insulated
Deck Description: 2500 psi structural concrete.
System Type C: All layers of insulation simultaneously attached; membrane fully adhered.

All General and System Limitations apply.

Vapor Retarder: Any UL or FM approved vapor retarder may be installed on the deck or over the base layer of insulation.

One or more layers of the following.

<u>Base Insulation Layer</u>	<u>Insulation Fasteners (Table 3)</u>	<u>Fastener Density/ft²</u>
EnergyGuard Minimum 1.3" thick	N/A	N/A
ENRGY 3, ENRGY 3 25 PSI Minimum 1.4" thick	N/A	N/A

Note: All layers shall be simultaneously fastened; see top layer below for fasteners and density. Insulation panels listed are minimum sizes and dimensions; if larger panels are used, the number of fasteners shall be increased maintaining the same fastener density. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

<u>Top Insulation Layer</u>	<u>Insulation Fasteners (Table 3)</u>	<u>Fastener Density/ft²</u>
EnergyGuard, Fesco Foam Minimum 1.3" thick	1, 3 or 7	1:2 ft ²
ENRGY 3, PSI-25 Minimum 1.4" thick	1, 3 or 7	1:2 ft ²

Membrane: Flex Tripolymer MF/R or Flex Tripolymer FB membrane adhered to the insulation substrate with Flex Substrate Adhesive at a rate of 1.66 gal./sq. applied to the insulation, or the Flex Tripolymer FB membrane may be set in hot asphalt adhesive applied at the rate of 20-40 lbs./sq.

Note: Substrate Adhesive shall not be used on composite board insulation with the perlite face up.

Maximum Design Pressure: -45 psf. (See General Limitation # 9.)



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Membrane Type: Single Ply, PVC
Deck Type 3I: Concrete Decks, Insulated
Deck Description: 2500 psi structural concrete.
System Type D: Membrane mechanically attached over preliminary fastened insulation.

All General and System Limitations apply.

Vapor Retarder: Any UL or FMRC approved vapor retarder may be installed on the deck or over the base layer of insulation.

One or more layers of the following.

<u>Insulation Layer</u>	<u>Insulation Fasteners (Table 3)</u>	<u>Fastener Density/ft²</u>
EnergyGuard, Multi Max FA-3 Minimum 1.3" thick	N/A	N/A
ENRGY 3, ENRGY 3 PSI Minimum 1.4" thick	N/A	N/A

Note: Top layer shall have preliminary attachment, prior to the installation of the membrane sheet, at a minimum application rate of two fasteners per board for insulation boards having no dimension greater than 4 ft., and four fasteners for any insulation board having no dimension greater than 8 ft. All layers of insulation and base sheet shall be simultaneously fastened. See membrane sheet below for fasteners and density.

Membrane: Flex Tripolymer MF/R or Flex MFR PVC attached through preliminary attached insulation to the deck as described below.

Fastening: OMG 2" Barbed Plates and OMG #14 Roofgrip fasteners placed 6" o.c. in the membrane lap seams not more than 55" o.c.

Maximum Design Pressure: -45 psf. (See General Limitation # 7.)



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Membrane Type: Single Ply, PVC
Deck Type 3: Concrete Decks, Non-insulated
Deck Description: 2500 psi structural concrete.
System Type E: Membrane mechanically attached to deck.

All General and System Limitations apply.

Membrane: Flex Tripolymer MF/R or Flex MFR PVC attached to the deck as described below.
Fastening: OMG 2” Barbed Plates and OMG #14 Roofgrip fasteners placed 6" o.c. in the membrane lap seams not more than 55" o.c.
Maximum Design Pressure: -45 psf. (See General Limitation # 7.)



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Membrane Type: Single Ply, PVC
Deck Type 3: Concrete Decks, Non-insulated
Deck Description: 2500 psi structural concrete.
System Type F(1): Membrane fully adhered to deck.

All General and System Limitations apply.

Membrane: Flex Tripolymer FB adhered to deck with Flex FB Low Rise Adhesive applied at 60 ft² per gal
Maximum Design Pressure: -382.5 psf. (See General Limitation # 9.)

Membrane Type: Single Ply, PVC
Deck Type 3: Concrete Decks, Non-insulated
Deck Description: 2500 psi structural concrete.
System Type F(2): Membrane fully adhered to deck.

All General and System Limitations apply.

Barrier: None.

Membrane: Flex Tripolymer MF/R or Flex Tripolymer FB adhered with Flex Substrate adhesive at a rate of 1.66 gal./sq. applied to the deck. The deck shall be primed with Monsey asphalt primer which shall be allowed sufficient time to cure prior to the application of the membrane. Flex Tripolymer FB membrane may be set in type III hot asphalt adhesive applied at the rate of 20-40 lbs./sq

Maximum Design Pressure: -615 psf. (See General Limitation # 9.)



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CONCRETE DECK SYSTEM LIMITATIONS:

1. If mechanical attachment to the structural deck through the lightweight insulating concrete is proposed, a field withdrawal resistance testing shall be performed to determine equivalent or enhanced fastener patterns and density. All testing and fastening design shall be in compliance with Testing Application Standard TAS 105 and Roofing Application Standard RAS 117 and/or RAS 137, calculations shall be signed and sealed by a Florida registered Professional Engineer, Registered Architect, or Registered Roof Consultant.

GENERAL LIMITATIONS:

1. Fire classification is not part of this acceptance, refer to a current Approved Roofing Materials Directory for fire ratings of this product.
2. Insulation may be installed in multiple layers. The first layer shall be attached in compliance with Product Control Approval guidelines. All other layers shall be adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq., or mechanically attached using the fastening pattern of the top layer
3. All standard panel sizes are acceptable for mechanical attachment. When applied in approved asphalt, panel size shall be 4' x 4' maximum.
4. An overlay and/or recovery board insulation panel is required on all applications over closed cell foam insulations when the base sheet is fully mopped. If no recovery board is used the base sheet shall be applied using spot mopping with approved asphalt, 12" diameter circles, 24" o.c.; or strip mopped 8" ribbons in three rows, one at each side lap and one down the center of the sheet allowing a continuous area of ventilation. Encircling of the strips is not acceptable. A 6" break shall be placed every 12' in each ribbon to allow cross ventilation. Asphalt application of either system shall be at a minimum rate of 12 lbs./sq. **Note: Spot attached systems shall be limited to a maximum design pressure of -45 psf.**
5. Fastener spacing for insulation attachment is based on a Minimum Characteristic Force (F') value of 275 lbf., as tested in compliance with Testing Application Standard TAS 105. If the fastener value, as field-tested, are below 275 lbf. Insulation attachment shall not be acceptable.
6. Fastener spacing for mechanical attachment of anchor/base sheet or membrane attachment is based on a minimum fastener resistance value in conjunction with the maximum design value listed within a specific system. Should the fastener resistance be less than that required, as determined by the Building Official, a revised fastener spacing, prepared, signed and sealed by a Florida Registered Engineer, Architect, or Registered Roof Consultant may be submitted. Said revised fastener spacing shall utilize the withdrawal resistance value taken from Testing Application Standards TAS 105 and calculations in compliance with Roofing Application Standard RAS 117.
7. Perimeter and corner areas shall comply with the enhanced uplift pressure requirements of these areas. Fastener densities shall be increased for both insulation and base sheet as calculated in compliance with Roofing Application Standard RAS 117 and/or RAS 137. Calculations prepared, signed and sealed by a Florida registered Professional Engineer, Registered Architect, or Registered Roof Consultant
(When this limitation is specifically referred within this NOA, General Limitation #9 will not be applicable.)
8. All attachment and sizing of perimeter nailers, metal profile, and/or flashing termination designs shall conform to Roofing Application Standard RAS 111 and applicable wind load requirements.
9. The maximum designed pressure limitation listed shall be applicable to all roof pressure zones (i.e. field, perimeters, and corners). Neither rational analysis, nor extrapolation shall be permitted for enhanced fastening at enhanced pressure zones (i.e. perimeters, extended corners and corners). **(When this limitation is specifically referred within this NOA, General Limitation #7 will not be applicable.)**
10. All products listed herein shall have a quality assurance audit in accordance with the Florida Building Code and Rule 9N-3 of the Florida Administrative Code.

END OF THIS ACCEPTANCE